

MEA-2100 in Serial Control

Description

This technical note serves as a quick-start guide for configuring and operating the MEA-2100 with an AFP Stream Selection Valve. The multiposition actuator is controlled through serial communication. This guide introduces the AFP Network Protocol and a secondary industry-standard protocol, providing the information needed for rapid integration and initial operation.



Characteristics

- 30% smaller footprint vs previous model (4.20" x 2.125" x 2.75").
- Easy switching from 4 ports to 16 ports.
- No need for multiple actuator models for the different types of valves
- Two modes – fast actuation or high torque set by serial command.
- CE approved.
- Compatibility of OEM protocols on request.
- Direct replacement of multiposition electrical actuators in the market.
- AFP_CLIENT utility software for easy operation and development of the actuator.
- Multiple run time information: track the number of boots, actuations, etc
- Energy-efficient: Low standby power with ondemand

Serial Communication Features

- Multiuser
- Compatibility between AFP product family
- Easy to use text command (ASCII)
- Return parameter to confirm command execution

MEA-2100 Default Configuration

Control Mode: Serial	CMD_010
Number of ports: 08	CMD_015
Torque: High	CMD_019
Secondary protocol: Active	CMD_020
ID number: 01	CMD_009

Serial Communication Features

SPECIFICATION	DESCRIPTION	
8-bit Microcontroller and configuration Memory		
USB 2.0	Full Duplex	9600 Bauds
RS-232	Full Duplex	9600 Bauds
RS-485 (2 wires)	Half Duplex	9600 Bauds
Operating temperature	Fahrenheit (°F) Celsius (°C)	32°F to 140°F 0°C to 60°C
CE Conform, RoHS		

Electrical Specifications

General Application

SPECIFICATION	DESCRIPTION	
Supply voltage input (Transient and Reverse polarity protection)	Typical	24 Volts DC / 1.5 Amp.
Standby power consumption	Typical	1.6 W.

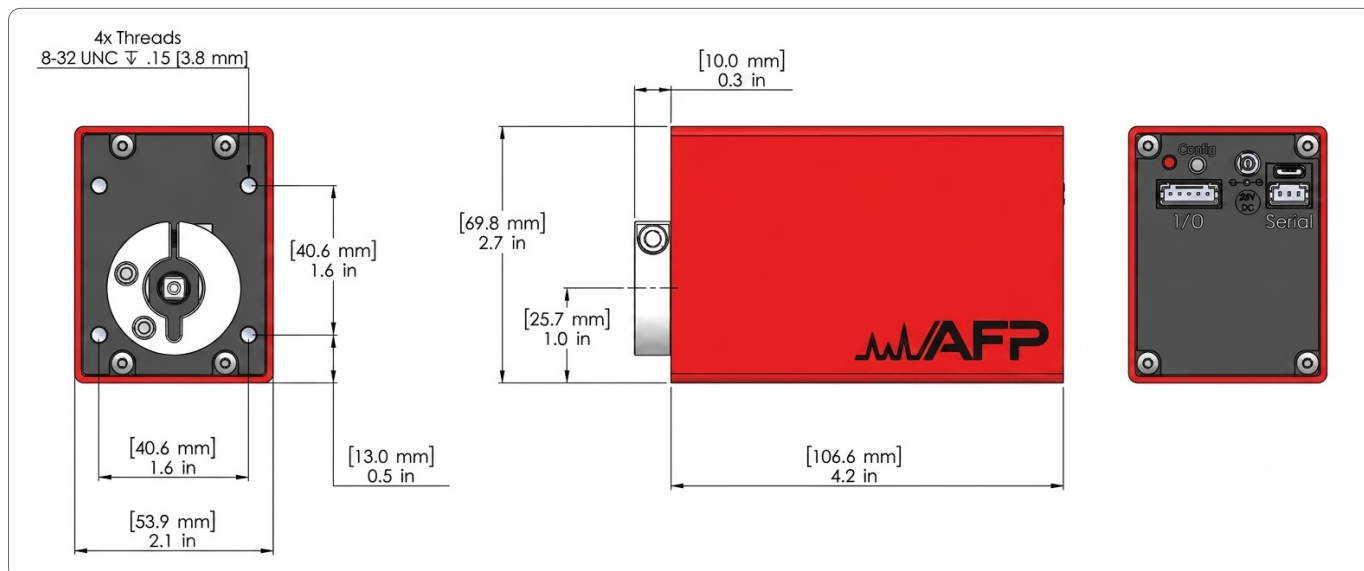
Digital Input Specifications

ALL DIGITAL INPUTS	OPTO ISOLATED
Open collector input	5V / 1.0kΩ = 5 mA Typical
Dry contact (switch to GND)	Internal pull-up

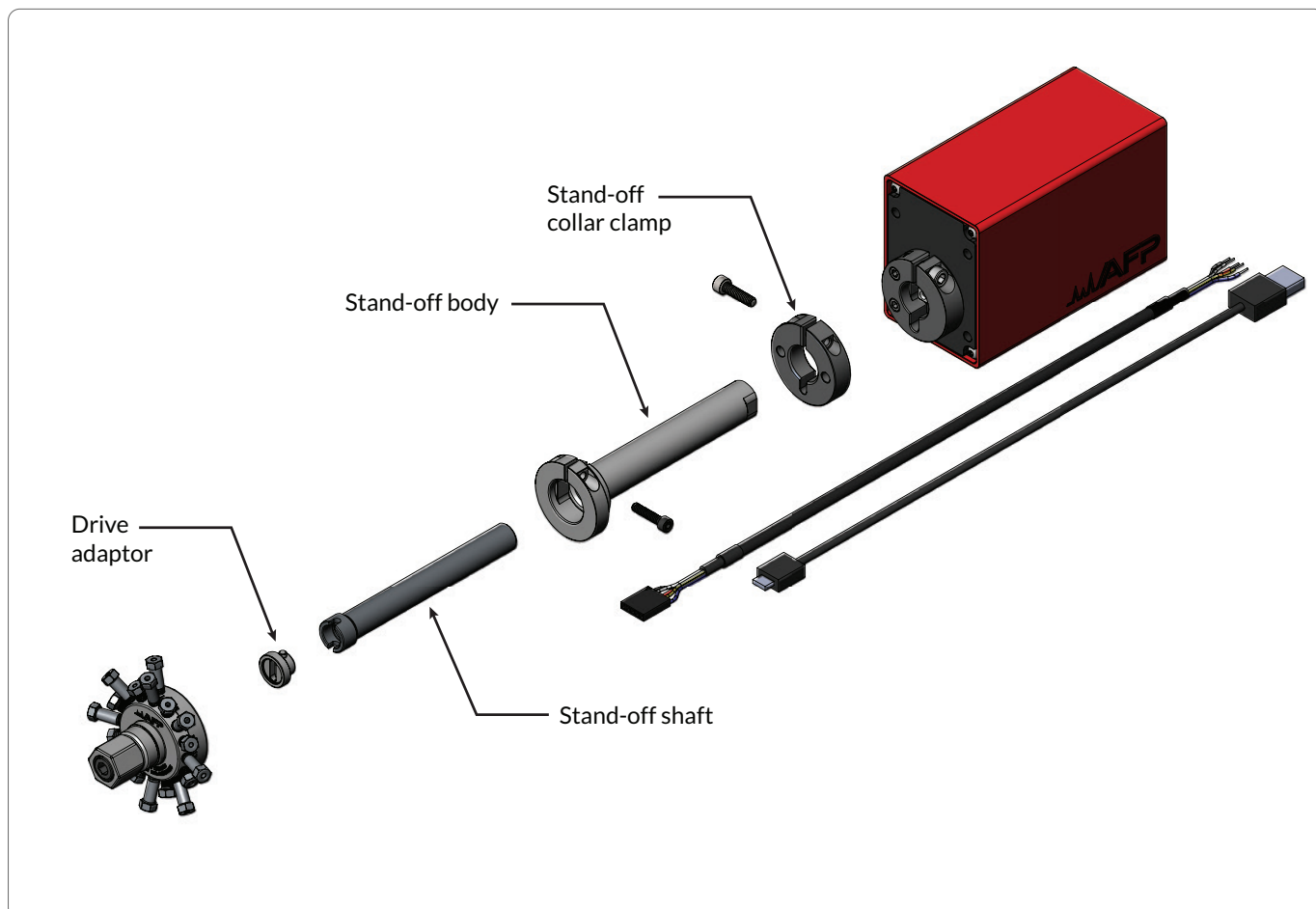
Digital Output Specifications

ALL DIGITAL OUTPUTS	OPTO ISOLATED
Opto isolated output	Internal pull-up 5V / 1.0kΩ = 5 mA
Output Voltage	TTL level +5 Volts
Output Current	5 mA

Dimensions



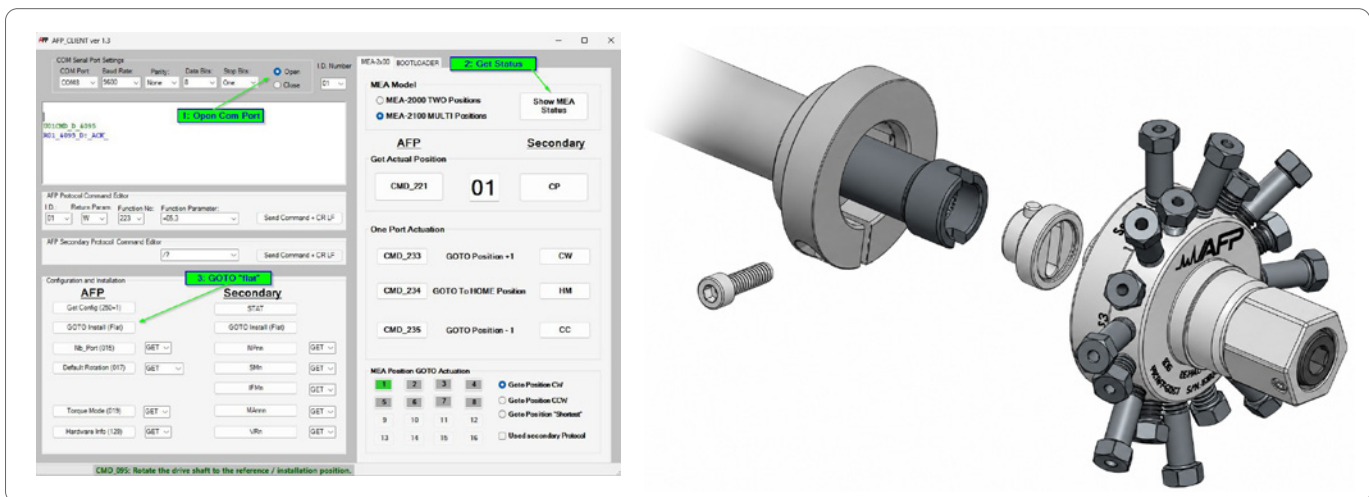
Standard Assembly



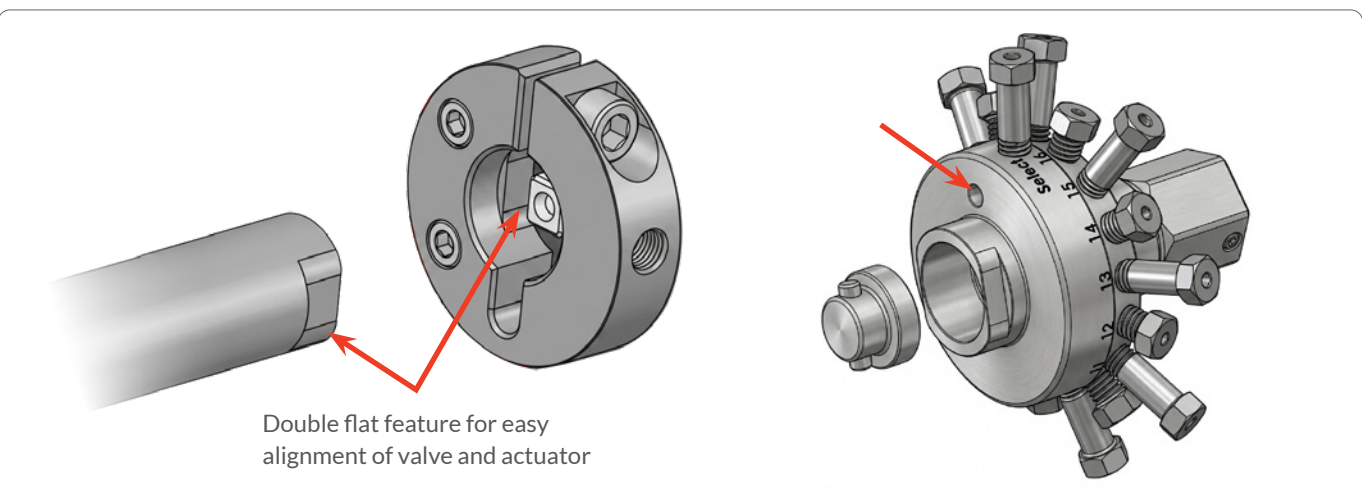
Before Starting

For your own safety, before installing or changing a valve on the MEA-2100 remove power supply from the actuator.

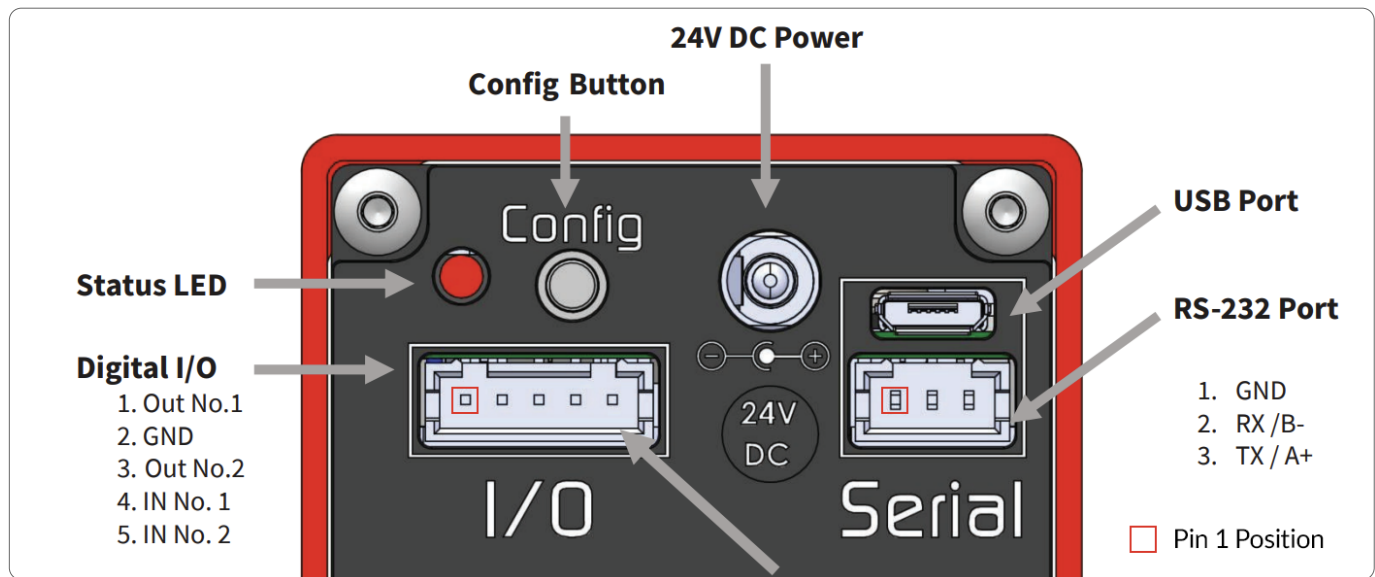
- Use the AFP_CLIENT utility software.
- In the Configuration and Installation (left section) there is a special command. Press the **"GOTO Install (Flat)"** button and the motor shaft of the actuator will go to a 'flat position' where the valve can be installed onto the MEA-2100. Note that pressing the config button in the back panel the actuator will go to the "flat position"
- There is no need to do any extra operation once the valve is installed.
- AFP offers a retrofit kit for replacing competitor stream selection valves.



- The MEA-2100 uses precision standoffs with integrated mechanical alignment features to simplify installation. Alignment is built into both the collar and the standoff, ensuring accurate positioning and easy assembly. Select the appropriate part number to suit your application.
- The stream selector valve (AFP or competition) should be aligned using the drive adaptor to the alignment feature, which also points to stream #1 in AFP valves.

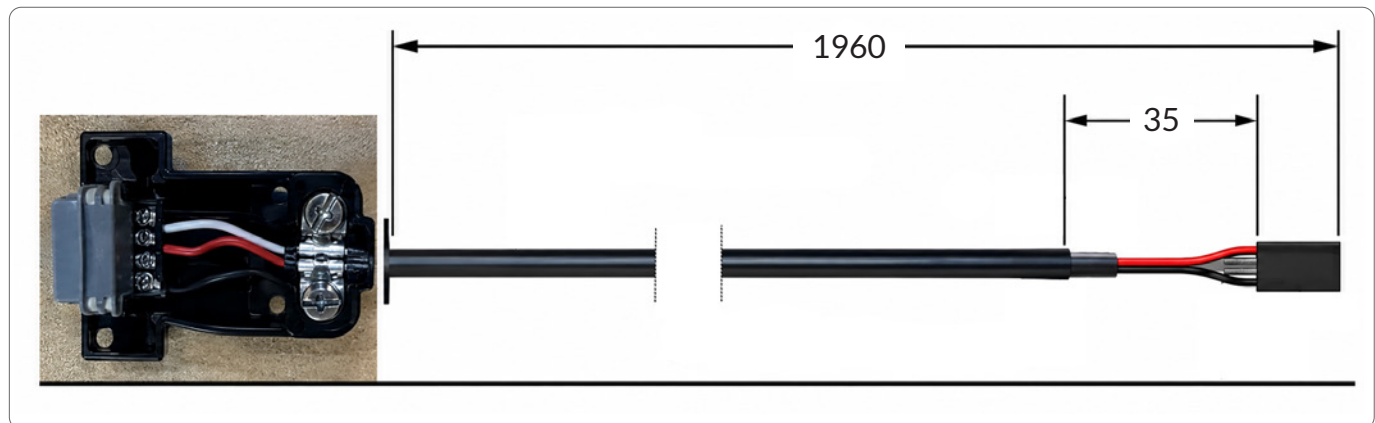


MEA-2100 Back Panel



EA00-9010-1020

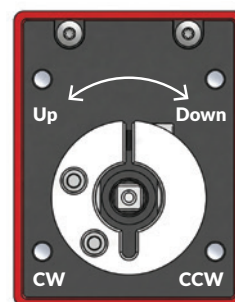
DB-9 RS-232 Serial Cable



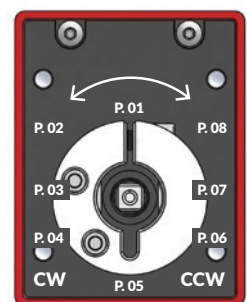
DB-9 FEMALE			MEA 3 PIN CONNECTOR	
Wire color	DB-9 Pin	DB-9 Signal	Serial port pin	Position
Red	3	TX server	3	Right
White	2	RX server	2	Center
Black	5	GND	1	Left

MEA Rotation and Port Positions

The MEA rotation operates like a construction drill. Clockwise rotation causes the MEA port number to go up. Counterclockwise rotation causes the port number to go down. This description is based on looking at the view from the shaft point of view.



All MEA Actuation



Multipositions

MEA-2100: SERIAL CONTROL ACTUATION

Here are commonly used actuations commands for the AFP_CLIENT utility software. All examples use the edited button in both AFP communication Protocol. You can also use other communication software and COM port settings at 9600,N,8,1.

Open Communication Port:

AFP AFP_CLIENT ver 1.3

COM Serial Port Settings

COM Port: Baud Rate: Parity: Data Bits: Stop Bits:

☒ Open ☐ Close

I.D. Number

Changing The Control Mode:

Command Number:010
Parameter: MODE,SERIAL
For control by the serial comm.
Parameter: MODE,DIGITAL
For control by digital input

Control Mode (010)

Actuation Using Both Protocols

1. Press the Show MEA Status button to give MEA informations.
2. In the same line both command have the same actuation: CMD_232 is Toggle position and TO is Toggle position
3. Check and Un-check the “Used secondary protocol” and see in the terminal windows the difference command format.

MEA Model
☒ MEA-2000 TWO Positions
☐ MEA-2100 MULTI Positions

Show MEA Status

AFP **Secondary**

Get Actual Position

CMD_221 CP

One Port Actuation

GOTO Position 1 or A

CMD_232

GOTO Position 2 or B

MEA Position GOTO Actuation

☒ Used secondary Protocol

MEA-2100: SERIAL MODE CONFIGURATION

The following are commonly used configuration commands for the AFP_CLIENT utility software. Some examples use the edited button, while others use the AFP Protocol Command Editor. You can also use other communication software and COM port settings at 9600, N, 8, 1.

Open Communication Port:

AFP AFP_CLIENT ver 1.3

COM Serial Port Settings

COM Port: Baud Rate: Parity: Data Bits: Stop Bits: ☒ Open ☐ Close I.D. Number

Changing the Control Mode:

Command Number:010
Parameter: MODE,SERIAL
For control by the serial comm.
Parameter: MODE,DIGITAL
For control by digital input

Control Mode (010)

U01CMD_H_010=MODE,DIGITAL
ACK

AFP Protocol Command Editor

I.D.: Return Param: Function No: Function Parameter:

Changing the Port Number:

Command Number:015
Parameter: 04,08,16
For control VALVE number of port

Nb_Port (015)

Selection Mode (014)

Control Mode (010)

Changing the Torque Mode:

Command Number:019
Parameter: MODE,1
For High Torque /low speed
Parameter: MODE,2
For Mid Torque / mid speed input

Torque Mode (019)

U01CMD_H_019=MODE,1
ACK

AFP Protocol Command Editor

I.D.: Return Param: Function No: Function Parameter: